IN THE CLAIMS:

Amend Claims 1, 2, 5, 6, 18-20 and 23 as follows and add Claim 29:

1.   Device for high-sensitivity resolution detection of an external variable with a substrate, comprising

–   at least one generating device (4, 104) on the substrate for generating acoustic surface waves by application of an input frequency,

–   at least one active surface (10, 110) that can be covered with acoustic surface waves by at least one generating device (4, 104) for interaction with an external variable,

–   at least one receiving device (6, 106) on the substrate to receive the surface waves after their passage through the active surface (10, 110),

–   where the at least one generating device (4, 104) designed in such a manner that the propagation range of the surface waves in question (1, 101) within the respective active surface (1, 110) changes with the height of the input frequency.

2.   Device for high-sensitivity resolution detection of an external variable according to claim 1, in which the external variable includes a local magnetic field, local illumination (9, 11), local heating, and/or local mechanical stress of the substrate.

5.   Device for high-sensitivity resolution detection of an external variable according to claim 1, in which at least one generating device (4, 104) includes a surface wave transducer in which the position of the surface wave beam input changes with the input high-frequency signal along its axis.

6.   Device for high-sensitivity resolution detection of an external variable according to claim 5, in which the surface wave transducer for generating an acoustic

surface wave (1, 101) includes a tapered interdigital transducer (3) in which the frequency-determining finger interval (8) is not constant along the axis of the surface wave transducer.

18.   Method for high-sensitivity resolution detection of an external variable according to claim 14, in which the surface wave (1, 101) phase altered by interaction with the external variable is evaluated at the respective input frequency.

19.   Method for high-sensitivity resolution detection of an external variable according to claim 14, in which the change in intensity of the surface wave caused by the interaction with the external variable is evaluated at the respective input frequency.

20.   Method for high-sensitivity resolution detection of an external variable according to claim 14, in which the change in the lag time of the surface wave (1, 101) caused by the interaction with the external variable is evaluated at the respective input frequency.

23.   Method for high-sensitivity resolution detection of an external variable according to claim 22, in which the frequency ranges of the surface waves (1, 101) coming from various directions do not overlap.

29.   Device for high-sensitivity resolution detection of an external variable according to claim 1, with at least two generating devices (4, 104) for generating acoustic surface waves (1, 101), in which the respective active surfaces (10, 110) at least partially overlap, and at least two generating devices (4, 104) positioned in such manner that they can cover the overlapping area with surface waves from different directions and